# NOTES ON THE BIOLOGY OF *PSEUDOMETHOCA FRIGIDA* (SMITH) (HYMENOPTERA, MUTILLIDAE).

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So little is known of the biology and host relationships of our North American Mutillids that I am publishing these few observations which were made in the pine barren region southeast of Smithtown, Long Island, New York, on July 25, 1937.

My attention was drawn to two small insects wrestling on the sand in what I believed to be a copulatory embrace. Closer observation revealed that a female bee, *Halictus* (*Chloralictus*) *zephyrus* Smith,[1] was trying to decapitate a female *Pseudomethoca frigida* (Smith). The Mutillid made no attempt to defend herself and so far as I could see the bee did not try to use her sting. After several moments of this treatment the bee flew off and I placed the Mutillid at the opening of a burrow a few inches away which was guarded by another female *Halictus zephyrus*. During the preceding fracas this second bee had remained in the burrow with only her head protruding. Now she turned around in the burrow presenting the tip of her abdomen to the wasp. The *Pseudomethoca* tried to dig past her to get into the burrow and failing in that attempted to drag the bee out bodily also without success. At this point the second bee returned and dragging the wasp several inches away began to maltreat it again. After this second mauling the wasp was so weak I placed all three insects in the killing jar for subsequent determination.

The burrow was then excavated and found to be a tortuous affair some four inches long and ending about two inches below the ground level. So far as I could determine no cells had been constructed by the joint owners of the burrow nor were there any signs of intrusion by Mutillids.

The behavior of the wasp gives rise to several questions which almost imply aberrant behavior on the wasp's part. Why did the wasp so passively accept the bee's mauling? Even in these tiny Mutillids the sting is quite a potent weapon and must have made some impression on the bee if it had been used. Secondly, is it possible that the egg of the parasitic wasp is deposited in the host's burrow before the host has stocked the cells and laid her own eggs?

[1] Miss Grace Sandhouse, of the United States National Museum, has been kind enough to identify the two bees.

Melander and Brues[2] record similar observations on battles between *Halictus* (*Chloralictus*) *pruinosus* Robertson and the same species of *Pseudomethoca* (recorded by them as *Mutilla canadensis* Blake). However, they state that the Mutillid fights back occasionally killing the bee. They do not say whether the Mutillid's egg is laid in the bee's nest before or after it is provisioned.

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[2] Melander, A. L., and C. T. Brues. Biol. Bull., V: 4–7, fig. 4, 1903.